

BASEMENT



HD28
.M414

NO.1329-82

Dewey



WORKING PAPER
ALFRED P. SLOAN SCHOOL OF MANAGEMENT

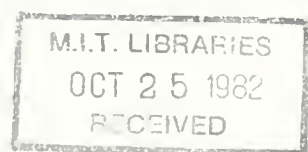
INDUSTRIAL RELATIONS PERFORMANCE, ECONOMIC PERFORMANCE
AND THE EFFECTS OF QUALITY OF WORKING LIFE EFFORTS:
AN INTER-PLANT ANALYSIS

Harry C. Katz
Thomas A. Kochan
Kenneth R. Gobeille*

SSMWP# 1329-82

July, 1982

MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139



INDUSTRIAL RELATIONS PERFORMANCE, ECONOMIC PERFORMANCE
AND THE EFFECTS OF QUALITY OF WORKING LIFE EFFORTS:
AN INTER-PLANT ANALYSIS

Harry C. Katz
Thomas A. Kochan
Kenneth R. Gobeille*

SSMWP# 1329-82

July, 1982

*The authors are, respectively, Assistant Professor and Professor of Industrial Relations at the Sloan School of Management, M.I.T., and an employee of the General Motors Corporation. We wish to thank Anil Verma for his excellent data analysis assistance. We also wish to thank the staff of the General Motors Corporation for their assistance in collecting these data and for their comments on the paper. Partial support for this research was provided by the Sloan Foundation. The conclusions and interpretations are solely those of the authors and do not represent the official views of the General Motors Corporation or the Sloan Foundation.

In recent years industrial relations researchers have stressed the need to move beyond simple union/nonunion comparisons to examine the diversity in results obtained under collective bargaining in different settings.¹ Accompanying this view has been a call to draw on more micro level (firm or establishment) data in order to achieve a better understanding of the variety of effects that collective bargaining processes and outcomes exert on the goals of individual workers and their employers. Driving these arguments is the need to assess the performance of industrial relations systems and practices at the workplace and the results of change strategies designed to improve their performance.²

While these ideas have been evolving within the research community, a number of companies and unions have been experimenting with new strategies for improving the performance of their bargaining relationships at the plant level through what generally have been labeled "quality of working life" (QWL) efforts.³ The common thread running through these efforts is that they attempt to go beyond traditional union-management activities such as arms-length negotiations, formal and informal grievance handling, and union-management committees on specific topics. Instead, QWL programs try to establish direct channels of communication between workers and their supervisors and involve workers in shop floor decision-making and through this process improve both organizational effectiveness and the psychological rewards workers obtain from their jobs.⁴

These QWL programs hold the potential for significantly altering the conduct of U.S. industrial relations in unionized plants. Indeed, the popular press and media have given a tremendous

amount of attention to these efforts. They are often seen as part of the solution to sluggish productivity growth, as a way of easing the traditional adversary relationships between labor and management, and as signifying a "New Industrial Relations."⁵ As yet, however, we have anecdotes, speeches, and case studies extolling the virtues of these strategies but we have little hard empirical evidence on their longer term effects. Analysis of the impacts of these QWL programs requires that the researcher control for the influence of other causal factors. This, in turn, necessitates the very sort of micro-analysis industrial relations researchers have been calling for.⁶

However, no well-developed theory or set of propositions exists that relate variations in plant level industrial relations outcomes obtained under collective bargaining to productivity or other measures of organizational effectiveness. We do have hypotheses regarding the shock effects of collective bargaining on management policy and behavior,⁷ the voice effects of unions,⁸ and the human resource and technological adjustments employers make to changes in bargaining agreements.⁹ These hypotheses, however, generally address the average effects of unions and collective bargaining rather than the effects of variations in industrial relations system features. None of these hypotheses, furthermore, help explain how QWL efforts are expected to affect the industrial relations system or organizational effectiveness. Thus, for both theoretical and applied reasons, industrial relations researchers need to begin to address the rationale underlying QWL strategies and their results.

This paper serves as an exploratory effort to address these questions by examining the relationships among multiple indicators of industrial relations performance, the economic dimensions of

organizational effectiveness, and QWL efforts at the plant level. It is exploratory in the sense that it draws on a rich body of plant level data seldom available to researchers to test the strengths of the associations between measures of industrial relations performance and economic performance. Our purpose is to generate rather than formally test propositions since an adequate theoretical structure for relating these concepts has yet to be developed. The data do allow us, however, to test a number of generally accepted, yet heretofore untested, propositions regarding the interrelationships among different dimensions of industrial relations performance. Finally, since the data are drawn from the files of eighteen General Motors (GM) plants for the years 1970-79, we can begin to assess the effects of the well-publicized QWL efforts that got underway in some of these plants during these years. We do not, however, present our findings as a formal evaluation of the QWL efforts, since only limited data are available from a sub-set of the plants in which joint efforts with the United Automobile Workers (UAW) are underway. A comprehensive evaluation would require data on a broader array of process and outcome measures from a wider sample of plants. The data do, however, provide an ideal opportunity to examine empirically the extent of the diversity of results that can be obtained by the same company and union in different plants operating under the same basic technology, and the potential the parties have to alter these results.

In the sections that follow we present a general conceptual framework for linking industrial relations and economic performance at the plant level. We then test the empirical relationships that exist among and across these characteristics. Then, variations in the intensity of QWL efforts are utilized to determine if the QWL

programs produce improvements in industrial relations and economic performance. The final section returns to the basic theoretical questions we are raising in this paper by proposing a tentative explanation for how industrial relations outcomes are linked to economic performance and the ways QWL efforts might affect these links.

The General Conception Model

The general model guiding our analysis is diagrammed in Figure 1. It adopts the standard industrial relations systems framework by assuming that the characteristics of plant level collective bargaining processes and outcomes are a function of a variety of environmental, demographic, organizational, and historical factors. While this stage of the model is important in its own right and has been the focus of the majority of collective bargaining research, it is not the focus of this analysis. We are less interested in the causes of variations in collective bargaining and industrial relations system properties than in relating variations in these properties to measures of organizational effectiveness.

Collective bargaining researchers have traditionally focused on the formal negotiations and contract administration procedures or processes, and on the rules that govern employment relationships.¹⁰ These institutional procedures and rules interact with and influence the attitudes and behaviors of workers and managers who together establish the attitudinal climate of the workplace.¹¹ It is the variations in the outcomes or performance of these industrial relations processes and procedures that are expected to influence plant level economic performance through their impacts on labor costs, productivity, and product quality. QWL

efforts, therefore, are viewed as strategies for involving workers in ways that are designed to change attitudes and behaviors and thereby improve both industrial relations performance and economic performance.¹² These general conceptual arguments are used to guide the exploratory analyses that follow.

Industrial Relations Performance

Four interrelated dimensions of plant level industrial relations performance are analyzed in this study: (1) the attitudinal climate of the union-management relationship, (2) the rate of grievance and discipline cases, (3) the number of demands introduced in local contract negotiations and the length of time required to reach local agreements, and (4) the rate of absenteeism in the plant. While these are not posed as exhaustive measures of industrial relations performance at the plant level, they do cut across four key aspects of the collective bargaining relationship, namely, the negotiations of new contracts, the administration of the agreement, the attitudinal relationships between the local union and the management, and the behavior of individual workers.

These industrial relations performance measures are seen as being systematically interrelated in a complex cycle that is perpetuated over time such that a simple cause-effect relationship may be impossible to discern. Indeed there may be little practical value in attempting to specify the precise direction of the causal relationships among these performance measures since, over successive rounds of bargaining, conflicts from one aspect of the relationship are likely to get carried over to the others and thereby blur the origin of the causal chain. For example, unresolved grievances are likely to turn into contract proposals and produce more hostile

attitudinal relationships and perhaps also lead to higher levels of absenteeism. However, the cycle could just as easily begin with a particularly difficult round of negotiations and carry over to affect the grievance procedure, union-management attitudes, and employee behavior. The critical question, therefore, is whether QWL programs (or some other intervention) can break into this causal chain, produce improvements in one or more of these dimensions, and thereby alter the performance of the others. The question then turns to whether these QWL efforts either directly or through improvements in industrial relations performance lead to improvements in the quality of jobs for workers and improved economic performance for the firm.

Data and Analysis Plan

The data for this study were collected from company files on 18 plants covering the years 1970-79. The plants are all in one division where the technology and product are very similar. Four of the plants, however, do not report data prior to 1971. Thus, the overall data set provides a pooled cross section sample of 176 observations for most of the industrial relations and economic performance measures. Missing data on a small number of variables reduces this sample slightly in some of the analyses. Only four rounds of bargaining occurred over this time span (1970, 1973, 1976, and 1979) and some of the plants do not report bargaining data for the 1970 and 1973 rounds. Therefore, the maximum sample size for data relating to the negotiations process (number of union demands and number of days required to reach a local plant agreement) is 68. It should be noted that the bargaining that occurred over these local agreements was supplemental to national contract negotiations.

GM began administering a quality of working life attitude

survey in its plants in 1976. While the time of administration in each plant varies and therefore does not correspond precisely to the calendar year from which the other data come, we do have 65 plant administrations of this survey between 1976 and 1979. The survey provides a composite score of answers that managerial and supervisory employees gave to five questions concerning the degree of trust and cooperation between the union and management in a plant. That score is summarized in a variable we label Climate.

Starting in 1977, each plant reported annually to its division headquarters on the range of QWL efforts underway in the plant. The measure of the intensity of QWL effort used here is derived from a content analysis of these reports and therefore is only available for the years 1977-79. The procedures used in this content analysis are described in Appendix A. Although some of the plants may have started their QWL programs prior to 1977, we have no way of measuring this and therefore, we undoubtedly have some degree of measurement error in this variable.

We measure the economic performance of each plant with two indices computed by General Motors. A quality index is derived from a count of the number of faults and "demerits" that appear in inspections of the product. The quality index is available for 1973 to 1979. A direct cost index compares actual hours of production worker labor input to standardized hours calculated by industrial engineers at General Motors. The higher the direct cost index the lower are costs. The labor standards utilized in this index include consideration of variations in product attributes. The quality and direct labor indices are annual plant averages.

We will treat these data as a pooled cross-sectional sample which measures only some of the relevant theoretical determinants of industrial relations performance and economic performance. Of all the environmental and organizational variables that could be measured, here we are limited by the data available from company files and reports. While these data are exceedingly rich and adequate for our purposes, they do not incorporate all of the potentially important sources of variations in the dependent variables. For example, turnover of top plant management or union leadership, internal union and management political characteristics, differences in the technology and skill mix in the plant, etc. may all affect industrial relations and economic performance. To the extent that these unmeasured factors are randomly distributed across these plants they do not bias the coefficients obtained in our analysis. However, to the extent that they are correlated with a measured variable, the coefficients will be affected.¹³ Thus, in some of the analyses dummy variables are included to capture the unique plant specific unmeasured variables that may otherwise bias our results (this is equivalent to estimating a fixed-effects model).

The analysis starts with a description of the overall patterns and variations in the industrial relations and economic outcomes across these plants. We then review the intercorrelations between the industrial relations performance measures and test the correlations between economic performance, industrial relations and environmental factors. Then the effects of the QWL efforts are assessed.

Results

At the outset of the paper we noted the importance of examining the diversity of outcomes that are produced by collective bargaining in different bargaining relationships. The descriptive statistics provided in Table 1 illustrate this point. Despite the common technology, union, and employer from which these data are drawn, there is a wide variation across plants in grievance rates, discipline rates, absenteeism, and the other industrial relations and economic performance measures. Note, for example, that in 1979 grievances per one hundred workers varied from a low of 24 in one plant to a high of 450 in another plant. Absenteeism varied between 4.7% and 10.3%. The number of contract demands introduced in the local negotiations for the 1979-agreement varied from a low of 102 to a high of 754. The economic significance of the variation in the indices of economic performance is not as easily interpreted since these indices are a product of GM's particular accounting and quality control systems. These figures do, however, show considerable variation around their means and again illustrate the need to probe within the plants to examine the causes of these variations and the effects of alternative labor-management relations strategies.

Time plots of the data reveal that an important source of variation appears to be a correspondence to the business cycle and the volume of work in the plants.¹⁴ There are sharp increases in grievance activity, absenteeism and direct labor costs during the growth years of 1970-73 followed by a sharp drop in these measures as the oil embargo and the consequent decline in auto sales took effect between 1973 and 1975. As the industry recovered in 1976-79, grievance activity, absenteeism and direct labor costs again rose

substantially. The implication of these variations for our subsequent analyses is that we do need to control for (1) the effects of variations in the volume of production activity in the plants, and (2) plant specific effects that are not captured by the general environmental characteristics available to us.

Relationships Among Industrial Relations Performance Measures

The correlations among the measures of industrial relations performance are presented in Table 2. The relationships are all in the expected direction and twelve out of fifteen are statistically significant beyond the one percent level. Thus, these data provide strong support for the proposition that these industrial relations performance measures are systematically related in a reinforcing cycle. Specifically, the more cooperative the attitudinal climate between the local union and management, the lower the grievance rate ($r = -.77$), discipline rate ($r = -.20$), absenteeism, ($r = -.49$); the fewer the demands introduced by the union in contract negotiations ($r = -.49$) and the less negotiating time required to reach an agreement ($r = -.52$). Similarly, grievance, discipline, and absenteeism rates are all positively and statistically significantly correlated with each other and positively correlated with a number of contract demands and the length of negotiation time required to reach a local agreement. While others have argued that these interrelationships should exist, to our knowledge this is the first empirical confirmation provided for this general proposition.¹⁵

Relationships Between Industrial Relations Performance, Environmental Factors, and Economic Performance

Correlations between measures of economic performance (indices of product quality and direct labor costs) and the industrial

relations performance and environmental measures are presented in Table 3. Eleven out of twelve of the correlations between the economic and industrial relations performance measures are in the expected direction. Ten out of the twelve are statistically significant at the five percent level while nine out of the twelve are statistically significant at the one percent level. Higher grievance and discipline rates are related to lower quality and higher costs. Higher absenteeism is related to higher costs. Surprisingly, higher absenteeism is also related to higher quality, although the correlation with quality does not reach conventional statistical significance levels.¹⁶ Fewer difficulties in negotiating new contracts (fewer demands and fewer days required) are all related to higher quality and lower costs. There is also evidence that economic performance is related to the volume of economic activity in the plant as measured by total work hours and the overtime ratio.

These correlations support our theoretical argument that industrial relations performance affects economic performance. The existence of these effects also provides support for the parties' decision to embark on a strategy to improve industrial relations performance in these plants. Evidence of the association between attitudinal climate and economic performance provides particularly strong justification for the QWL programs since advocates of these efforts argue that these attitudes are one of the key initial targets of the QWL efforts. Thus, we now turn to the analysis of the impacts of the QWL efforts in these plants.

Analysis of the Impacts of QWL

Our underlying model hypothesizes that QWL efforts affect economic performance, the quality of jobs as perceived by workers, and industrial relations performance. Before proceeding to a review of our findings, it is important to note that our data, unfortunately, provide no measure of job quality; thus the important impacts of QWL on job quality cannot be addressed in our analysis.

Changes in High and Low QWL Plants. To assess the impacts of the QWL efforts we first compare changes in the industrial relations and economic performance of the five plants with the highest and lowest QWL program rating in 1977 in Table 4. We look at changes before and after 1977 because discussion with QWL staff in these plants leads us to believe that although the QWL effort formally began in 1973, it was not until 1977 that QWL programs actually were underway in most of the plants. The year 1977 is also the earliest measure of the QWL programs our data provides.

From 1974 to 1976, except for direct labor costs, measures of the mean industrial relations and economic performance of the plants which later developed high levels of QWL were deteriorating relative to the performance measures of the five plants which later had little QWL. For instance, in the high QWL plants from 1974 to 1976 grievance and absentee rates rose 17.6% and 47.5% on average, while in the low QWL plants grievance and absentee rates rose 4.3% and 23.4%.

In contrast, from 1977 to 1979, mean industrial relations and economic performance measures were improving in the five high QWL plants in comparison with the five low QWL plants (except for grievance rates). The plants with highest QWL on average had a 1.5%

improvement in their quality index while the plants with lowest QWL had a .25% decrease in their quality index. With respect to absentee rates over the 1977-79 period, the plants with the most QWL effort had a 1.8% increase while the five lowest ranked plants had a 20.0% increase. In the face of wide variation in the experiences across plants, none of the differences in the changes in performance from 1977 to 1979 between the top and bottom five plants are statistically significant at even the .10 level.

Regression Analysis. Another way to measure the impact of QWL programs with these data is to enter the QWL program ratings as an independent variable where economic performance indices are the dependent variables, and environmental variables are included as control variables. In some of these regressions we also enter grievance and absentee rates, and plant dummy variables as further controls. In light of concern that these additional control variables may "over control" and strip the QWL program variable of its true impacts, in some of the regressions we do not include the industrial relations performance measures and dummy variables as control variables.

Because of our inability to measure the intensity of QWL programs prior to 1977 we enter a score of zero for the QWL program rating (QWLRAT) in each plant for the years prior to 1977. Undoubtedly this introduces some measurement error, but this procedure has the advantage of allowing us to utilize other plant characteristics (environmental and industrial relations) prior to 1977 as controls in the estimation. Before reporting the results of this analysis, it is also important to note that this specification focuses on the impacts that QWL programs in place in any given year

exert on economic performance in that year. This specification may, however, ignore some of the dynamic impacts of QWL that appear over time.

Tables 5 and 6 report the results of these regressions where the observations are pooled time series and cross section plant level data for the years 1970 through 1979. In Table 5, the sign of the coefficients on QWL rating imply that more intensive QWL programs are associated with better product quality. In all four regressions the coefficient on QWL rating is statistically significant at the 1% level. When the grievance and absentee rates are not included as control variables, the coefficient on QWL rating is higher and has a smaller standard error. This suggests that some of the positive impact of the QWL programs on quality is transmitted through the impact of QWL on grievance and absentee rates. We interpret this as initial support for our hypothesis that QWL efforts can improve economic performance through their effects on industrial relations performance.

The sign of the coefficients on QWL rating in Table 6, where direct labor cost is the dependent variable, imply that more intensive QWL programs are associated with higher labor costs, however, none of these coefficients are statistically significant at even the 10% level. This is inconsistent with the evidence provided in Table 4 which shows that the five plants with high QWL ratings in 1977 had relative improvements in their direct labor costs from 1977 to 1979. Before discussing a potential source of the inconsistent assessment of the impact of QWL activity on direct labor costs, we review a few other results from the regressions.

Whenever the grievance rate is included as a control variable in the regressions reported in Tables 5 and 6, higher grievance rates are associated with lower product quality and higher direct labor costs, and this association is statistically significant at the 1% level. This lends further support to our hypothesis that the level of industrial relations conflict affects economic performance at the plant level.

The association between absentee rates, and quality and direct costs in the regression analysis is not consistent. In one of the regressions higher absentee rates is associated with better product quality and this association is statistically significant at the 1% level. However, this may merely reflect the concomitant rise in both quality and this absenteeism in the late 1970s mentioned earlier. In contrast, in the direct cost regressions, a higher absentee rate is associated with higher costs and the absentee rate coefficient is statistically significant at the 1% level.

Whenever they are included in the regressions as a set, the plant dummy variables are statistically significant at the 1% level. This indicates that there are a number of unmeasured plant characteristics that affect economic performance.

Selection Bias Issues. One of the difficulties involved in assessing the validity of this estimation concerns whether or not this specification fully takes account of the "selection issues" associated with the distribution of QWL activities throughout the sample. For instance, the positive association between QWL and higher direct costs identified in the regressions reported in Table 5 could be the result of the fact that more extensive QWL programs appear in plants that for some unmeasured reason have higher costs.

To analyze the issue of selection bias, we measure the correlation between QWL ratings in 1977, and economic and industrial relations performance in 1976. We also measure the correlation between QWL ratings in 1979, and economic and industrial relations performance in 1978. These correlations, reported in Table 7, show that more extensive QWL programs appear in 1977 in plants that have a prior history of good economic and industrial relations performance. For instance, QWL 1977 rating is negatively correlated with 1976 costs, absentee rates, and discipline rates. By 1979, this pattern is largely reversed as illustrated by the fact that QWL 1979 rating is positively correlated with 1978 costs and absentee rates.

The correlations reported in Table 7 suggest that in the early stages of their introduction, QWL programs were more extensive in GM's better performing plants. After observing the success of the programs in those plants, GM apparently decided to more extensively develop QWL programs in plants that had histories of poor performance. A number of implications follow from the existence of this pattern. For one thing, the inconsistent impacts of QWL measured in the regression model may be due to our inability to fully account for the "selection issues" involved in the diffusion of QWL activity.¹⁷ Secondly, the way in which QWL spread throughout these plants provides a lesson regarding how a new workplace innovation like QWL is diffused in an organization. And furthermore, the existence of a diffusion pattern suggest that future evaluations of QWL programs in place at GM or elsewhere must take account of selection bias or else misleading results may follow.

Discussion

The results of this study provide initial support for the propositions that industrial relations performance measures such as grievance and discipline rates, union-management climate, absenteeism, and difficulty in contract negotiations are both systematically interrelated and strongly related to economic performance as measured by labor costs and product quality.

The results of our tests of the proposition that QWL efforts have produced improvements in industrial relations and economic performance across the plants are less conclusive. There is some evidence of marginal relative improvements in economic and industrial relations performance in plants that developed a high level of QWL activity. Regression analysis shows an association between more extensive plant level QWL program activity and better product quality. There is also evidence that some of the impact of QWL activity on product quality is transmitted through impacts on industrial relations performance. Regression analysis, however, does not reveal a positive association between more extensive QWL activity and lower direct labor costs.

Our evaluation of QWL is made difficult by the complicated diffusion pattern of QWL activities. Our ability to analyze the effects of the QWL efforts in these plants also is limited by: (1) the short time period in which the impacts of the efforts could be observed; and (2) the weaknesses in our measure of the intensity of QWL efforts. We will return to a discussion of the implications of these limitations for future research after discussing the theoretical meaning of the strong relationships observed between industrial relations and economic performance in these plants.

Toward a Theoretical Rationale

Given the recent upsurge in interest in QWL efforts and calls for reducing the adversarial elements in American industrial relations, practitioners may see it as rather "academic" to ask whether a clear theoretical rationale exists to support these strategies. Yet, if this experimental atmosphere is to be translated into lasting improvements in the conduct of industrial relations at the plant level, then we must have a better understanding of why and how industrial relations performance affects organizational effectiveness and how QWL or similar intervention strategies might improve these outcomes. The empirical results reported in this exploratory study further motivate the search for a better theoretical explanation of current actions.

Our results and the interest in QWL strategies suggest that an avenue by which productivity in unionized settings can be improved is through more effective management of conflict and collaboration at the workplace. Why is this the case? Clearly, it involves more than the simple and empirically unsubstantiated proposition of the human relations movement that greater productivity will result from increasing individual worker satisfaction and group cooperation.¹⁸ We believe that an understanding lies in a closer examination of the consequences of alternative means of managing conflict at the workplace. Alan Fox has argued that the central problem of industrial relations is overcoming the high-conflict/low-trust dynamic that can be set in motion within a bargaining relationship.¹⁹ Indeed, we see the reinforcing cycle of correlations shown in Table 1 as illustrative of that part of Fox's argument. That is, a high level of formal grievance and discipline

cases, a poor attitudinal climate between the union and management, high levels of absenteeism, and difficult contract negotiations indicate ineffective conflict management at the plant level and symbolize the carryover of the high-conflict/low-trust dynamic from one aspect of the employment relationship to another. This cycle ultimately affects economic performance. The diversity of industrial relations and economic performance across GM is testimony to the fact that there is wide variation in the extent to which labor relations in these plants is caught up in this cycle.

QWL efforts then, can be seen as one strategy for attempting to break out of the high-conflict/low-trust cycle. Breaking out of this cycle might lead to improved economic performance in at least three ways.

First, there may be a displacement effect as fewer resources and emotional energies need to be allocated to processing or resolving conflicts through the formal adversarial procedures or in creating stronger and more complex rules and control procedures to manage the workforce. The function of the personnel and industrial relations department can shift in emphasis from processing grievances and administering the adversarial aspects of the employment relationship to an emphasis on training supervisors in effective communication and problem solving.

A second route that may produce improved productivity as a result of breaking out of a high-conflict/low-trust cycle is through the motivation of individual workers. That is, to the extent that workers are interested in more participation in job-related decision-making, they may respond to these strategies by sharing their ideas on how to improve work performance, increase their

commitment to the job and the firm, and perform more effectively. We might call this the communication-motivation-commitment route.²⁰

Finally, these efforts may provide some direct payoffs to the firm in the form of greater flexibility in human resource management. Fewer rules on who does what tasks, more training in how to do a wider variety of tasks, and fewer constraints on changing the manner in which the work is organized may result.

While modifications in the high-conflict/low-trust cycle at the workplace may offer some of these positive returns to employers and employees, we do not expect that it will produce an end to the "adversarial relationship", as many of its more ardent supporters suggest. Indeed, the expectation of either an end to conflict at the workplace or a solution to the nation's productivity problems as the end result of these efforts falls into the same trap as did the old human relations school by ignoring the larger economic and structural contexts of the employment relationship. Clearly, the parties in the auto industry especially, and other industries as well, continue to face major differences in economic interests which require negotiations, compromise, and periodic adjustment. The tension between shop floor cooperation and adversarial bargaining will be greatest when contract negotiations confront difficult problems. Thus, the key to the success of these QWL efforts will lie in whether or not they are able to maintain effective collaboration at the workplace level over an extended period of time and, especially, through time periods when difficult problems are being resolved within the bargaining relationship.

Implications for Research

Several implications for further research on the role and impact of QWL or other worker participation programs in unionized settings can be drawn from this study. One task of future research is to develop better measures of QWL activities. It is also clear that we need to follow the effects of these programs over a longer period of time to test the staying power of cooperative efforts in the midst of mixed motive bargaining.²¹ We have also not examined the role that union participation plays in QWL programs. Future research should test the hypothesis that QWL efforts have different degrees of success or longevity in situations where unions are included in the program as a joint partner, compared to programs which are essentially management activities where the local union adapts either a neutral or an antagonistic role. We also need further theoretical elaboration of the channels through which industrial relations performance and QWL efforts affect economic performance.

Finally, most previous research (and to some extent, the research reported here as well) fails to relate workplace efforts at cooperation to the broader strategies and events that affect relations between a union and an employer.²² Only by examining how these workplace innovations fit into the larger industrial relations system in which they are embedded will we be able to answer the question of whether they are simply another in a long list of short-lived fads or in fact represent the beginnings of a "new industrial relations".

APPENDIX A

The QWL Content Analysis

Utilizing annual reports prepared by plant managers that describe the QWL activities within each plant, the QWL content analysis was performed in the following manner. Cards that listed representative QWL activities were provided to five industrial relations faculty members and graduate students with expertise in QWL programs. The experts were asked to rank these activities into three categories according to the significance the reader attached to the activity. The three categories then were assigned the following weights: Minor significance--1 point; Intermediate significance--2 points; Major significance--3 points. An average weight was derived for each activity based on the rankings provided by the five experts. Another reader then reviewed the QWL annual reports and recorded the occurrence of activities in each plant. Then, each activity was assigned its average weight and a total QWL score was computed for each plant for each year (1977-80). To test the reliability of this scoring procedure, a second reader also reviewed the annual reports and assigned the appropriate weight. The correlation between the scores obtained by the two readers was .85.

List of Representative QWL Activities

Holding an open house and providing plant tours for employee families and/or community residents

Community relations projects such as blood drives, United Way campaigns, etc.

Improving the physical environment of the plants, e.g., painting the walls, housekeeping improvements, etc.

Holding off-site training or problem-discussion meetings with salaried staff

Off-site training or problem-discussion meetings with hourly workers

Off-site meetings between plant management and union representatives

Substance (alcohol or drug) abuse programs

Experimental projects that involve specific work groups in the plant

Promotional programs that advertise the plant, e.g., plant tee-shirts, jackets, pens, etc.

Consultation meetings with hourly workers or union representatives over future QWL initiatives

Formation (or continuation) of a union-management QWL or other committees

Use of an outside consultant (or a GM or UAW QWL specialist)

Special programs emphasizing product quality, e.g., prizes cash awards, or recognition programs

Use of motivational films or other media presentations to workforce

Feedback of QWL survey to workers and/or union representatives

Joint GM-UAW orientation programs of new hires

Sharing of information on plans for plant expansion, renovation or changes with workers and/or union representatives

Upward communications programs, e.g., question boxes, suggestion boxes, plant newsletter, etc.

Special dinners or luncheons, e.g., for retiring employees, Christmas or other occasions

Enhancing the role of the first-line supervisors, e.g., through special seminars

FOOTNOTES

1. This point is stressed in Thomas A. Kochan, Labor Management Relations Research Priorities for the 1980s, (Washington, D.C., U.S. Department of Labor, 1980), pp. 20-22. See also John T. Dunlop, "Policy Decisions and Research in Economics and Industrial Relations," Industrial and Labor Relations Review, Vol. 3 (April, 1977), pp. 275-82. For a call for similar research from a practitioner's view, see Audrey Freedman, "A User's Agenda for Labor Management Relations Research," in Barbara D. Dennis (Ed.) Proceedings of the Thirty-Third Annual Meeting of the Industrial Relations Research Association (Madison, WI: Industrial Relations Research Association, 1981), pp. 22-25.

2. For a more complete discussion of these arguments and of the concept of "performance" or "effectiveness" in collective bargaining, see Thomas A. Kochan Collective Bargaining and Industrial Relations: From Theory to Policy and Practice, (Homewood, Illinois: Irwin, 1980), pp. 25-32; Milton Derber, W.E. Chalmers, and Milton Eoelman, "Assessing Union Management Relations," The Quarterly Review of Economics and Business, Vol. 96 (November, 1961), pp. 27-40, and; Jeanne M. Brett, "Behavioral Research on Unions and Union Management Systems," in Barry Staw and L.L. Cummings (Eds.) Research in Organizational Behavior, Vol. 2 (Greenwich, CT: JAI Press, 1980), pp. 188-93.

3. See for example, Robert H. Guest, "Quality of Work Life--Learning from Tarrytown," Harvard Business Review, July-August, 1979, pp. 76-87; Stephen H. Fuller, "How Quality of Worklife Projects Work for General Motors," Monthly Labor Review, Vol. 103, No. 7 (July, 1980), pp. 37-38, and Irving Bluestone, "How Quality of Worklife Projects Work for the United Auto Workers," Monthly Labor Review, Vol. 103, No. 7 (July, 1980), pp. 39-40.

4. For a summary of the theoretical assumptions underlying QWL and other forms of worker participation as well as a comprehensive review of the empirical literature on these subjects, see Jeanne Brett and Tove Hammer, "Organizational Behavior and Industrial Relations," in Thomas A. Kochan, Daniel J.B. Mitchell and Lee Dyer, (eds.) Industrial Relations Research in the 1970s: Review and Appraisal, (Madison, WI: Industrial Relations Research Association, forthcoming, 1982). For the most comprehensive empirical evaluation of a QWL effort see Paul S. Goodman, Assessing Organizational Change: The Rushton Quality of Work Experiment, (New York: Wiley-Interscience, 1979). See especially pp. 7-8 for a discussion of the joint objectives of QWL efforts.

5. "The New Industrial Relations," Business Week, May 11, 1981, pp. 85-98.

6. A similar argument for more systematic evaluation and less reliance on qualitative case studies is made by Brett and Hammer, "Organizational Behavior and Industrial Relations," p. 23, on the basis of their review of both American and European styles of worker

participation. They conclude: "We have learned more about the effects ofparticipation from the few carefully designed studies than from the numerous case reports available. It is high time participation researchers move beyond evaluation by storytelling."

7. The shock effect hypothesis is usually traced to the work of Sumner H. Slichter, Union Policies and Industrial Management, (Washington, D.C.: The Brookings Institution, 1981), p. 579. For a later elaboration of the hypothesis see Sumner H. Slichter, James J. Healy, and E. Robert Livernash, The Impact of Collective Bargaining on Management, Washington, D.C.: The Brookings Institution, 1960).

8. For a discussion of the voice effect as well as other channels by which unions affect worker and employer goals see Richard B. Freeman and James L. Medoff, "The Impact of Collective Bargaining: Illusion or Reality?" in Jack Stieber, Robert B. McKersie, and D. Quinn Mills (eds.) U.S. Industrial Relations 1950-1980: A Critical Assessment, (Madison, WI: Industrial Relations Research Association, 1981), pp. 47-98.

9. Management adjustment processes are discussed in Kochan, Collective Bargaining and Industrial Relations, pp. 331-5.

10. This summary of the collective bargaining literature is based on the framework found in Kochan, Collective Bargaining and Industrial Relations. One of the arguments in that book was the need to extend the analysis of collective bargaining beyond these traditional "dependent variables" to examine the effects of institutional characteristics on the goals of the firm, its employees, the union, and public policy. This paper is one attempt to move in the suggested direction.

11. For the basic theoretical discussion of the relationship between the attitudinal climate and other aspects of a collective bargaining relationship, see Richard E. Walton and Robert B. McKersie, A Behavioral Theory of Labor Negotiations, (New York: McGraw Hill, 1965), pp. 184-280.

12. Obviously, other more complicated causal relationships could be proposed for relating the broad concepts of industrial relations performance, economic performance or organizational effectiveness, and QWL intervention efforts. One could argue, for example, that there are feedback or reciprocal relationships between industrial relations and economic performance. While we acknowledge that these more complex relationships may exist, we are suggesting here that the predominant causal flow runs from industrial relations to economic performance. This approach is consistent both with the conventional literature on the effects of collective bargaining cited above and with the efforts of management, union, and neutral practitioners who are attempting to change the workplace through QWL interventions. Thus, for both theoretical and practical reasons this is the model of central interest to industrial relations professionals, and therefore the approach taken in our analysis.

13. See, for example, Richard J. Butler and Ronald G. Ehrenberg, "Estimating the Narcotic Effect of Public Sector Impasse Procedures," Industrial and Labor Relations Review, Vol. 35, No. 1 (October 1981), pp. 3-20.
14. These plots are available from the authors upon request.
15. Kochan, Collective Bargaining and Industrial Relations, pp. 390-95; David Peach and E. Robert Livernash, Grievance Initiation and Resolution: A Study in Basic Steel, (Boston: Graduate School of Business, Harvard University, 1974); Andrew J.W. Thomson and Victor V. Murray, Grievance Procedures, (London: Saxon House, 1976), and; Thomas R. Knight, Factors Affecting the Arbitration Submission Rate: A Comparative Case Study, M.S. Thesis, Cornell University, 1978.
16. The data show a concomitant rise in both quality and absenteeism in the late 1970s which may confound evaluations of the connection between the two variables. When we look across plants within a given year we consistently find an association between high quality and low absentee rates.
17. A potential area of future research is estimation of a two stage model which includes an equation that has the QWL program measure as the dependent variable. At this point in time and with these data, we are not confident of our ability to predict QWL development with this sort of linear model.
18. See, Donald P. Schwab and Larry L. Cummings, "Theories of Satisfaction and Performance: A Review," Industrial Relations, Vol. 9 (October, 1970) pp. 408-30.
19. Alan Fox, Beyond Contract: Work, Power and Trust Relations, (London: Faber, 1974).
20. For two different theoretical models that are consistent with this argument see J. Richard Hackman and Greg R. Oldham, "Motivation Through the Design of Work: Test of a Theory," Organizational Behavior and Human Performance, Vol. 16 (1976), pp. 250-279; and Richard E. Walton, "Establishing and Maintaining High Commitment Work Systems," in John R. Kimberly and Robert A. Miles (eds.) The Organizational Life Cycle: Issues in the Creation, Transformation and Decline of Organizations, (San Francisco: Jossey Bass, 1980), pp. 208-290.
21. For a theoretical discussion of the employment relationship as a mixed-motive situation see Walton and McKersie, A Behavioral Theory of Labor Negotiations.
22. For a discussion of some of these broader issues see Harry C. Katz, "Assessing the New Auto Labor Agreements," Sloan Management Review, forthcoming.

FIGURE 1

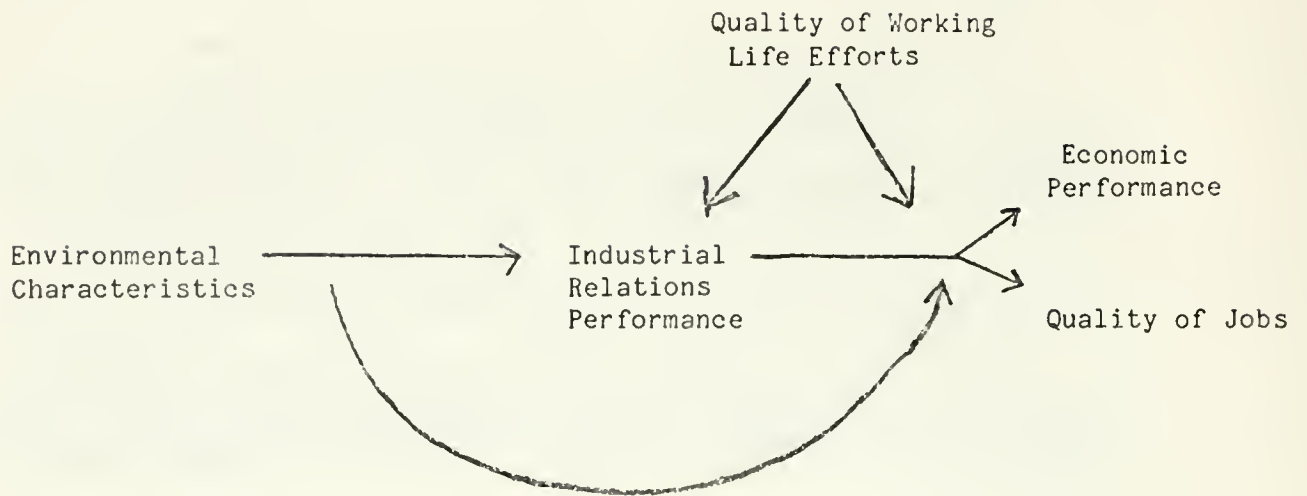


Table 1

Industrial Relations and Economic Performance in 1979

	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Standard Deviation</u>
Grievance Rate	124.3	24.5	450.2	133.1
Absentee Rate	7.4	4.7	10.3	1.7
Disciplinary Actions	44.5	20.0	86.8	17.5
Contract Demands	364.6	4	1163	196.4
Negotiation Time ^a	76.8	-110	532	143.4
Climate	2.9	2.2	3.8	.5
Quality Index	127.6	122.0	137.0	3.7
Direct Labor Cost Index	112.6	96.3	142.9	13.2

a - Negotiation time refers to the number of days between the signing of a local agreement and the national contract. Negative numbers arise when local agreements were reached before the national contract.

Table 2

Interrelationships Among Industrial
Relations Performance Variables as Measured^a
by Simple Correlation Coefficients

	Climate	Grievances	Discipline	Absenteeism	Demands	Negotiation Time
Climate	1.00					
Grievances	-.77**	1.00				
Discipline	-.20	.44**	1.00			
Absenteeism	-.49**	.26**	.43**	1.00		
Demands	-.49**	.31**	.31**	.31**	1.00	
Negotiation Time	-.52**	.57**	.30**	.16	.17	1.00

^aNumber of observations ranges between 171 and 176 for correlations involving measures of absenteeism, grievances, and discipline. Number of observations range between 65 and 68 for correlations involving climate, demands, and negotiation time.

* = statistically significant at .05 level

** = statistically significant at .01 level

Table 3

Correlations of Economic Performance with
IR Performance and Environmental Characteristics^a

	<u>Quality</u>	<u>Direct Costs</u>
Grievance Rate	-.27**	-.49**
Discipline Rate	-.20*	-.35**
Absenteeism	.13	-.38**
Climate	.44**	.44**
Number Demands	-.20	-.32**
Negotiation Time	-.39**	-.40**
Total Hours	-.05	-.24**
Overtime Ratio	.05	-.29**

^aNumber of observations ranges between 65 and 68 for correlations involving climate, demands and negotiation time. For all other variables the number of observations ranges between 171 and 176.

* = statistically significant at .05 level

** = statistically significant at .01 level

Table 4

A Comparison of the Change in Economic and Industrial Relations Performance in the Five Plants with the Highest and Lowest QWL 1977 Rating

Percentage Change in:	1974- 1976		1977-1979	
	Five Plants With Highest QWL 1977	Five Plants With Lowest QWL 1977	Five Plants With Highest QWL 1977	Five Plants With Lowest QWL 1977
Quality Index	4.2	6.1	1.5	-0.2
Direct Cost Index	5.5	4.7	-2.4	-4.8
Grievance Rate	17.6	4.3	5.2	4.8
Absentee Rate	47.5	23.4	1.8	20.6
Discipline Rate	42.1	18.8	6.0	11.5

Table 5

Regression Analysis of the Impact of Background,
Industrial Relations and QWL Rating Measures on Product Quality

<u>Explanatory Variables</u>	<u>Quality</u>	<u>Quality</u>	<u>Quality</u>	<u>Quality</u>
Interest	111.207** (3.149)	1116.021** (2.372)	123.340** (1.548)	124.049** (1.226)
Overtime	.082 (.078)	.101 (.084)	.049 (.082)	.048 (.082)
Total Hours	-.132 (.334)	-.122 (.318)	-.184 (.178)	-.272 (.181)
Grievance Rate	-.027** (.009)		-.019** (.005)	
Absentee Rate	1.167** (.330)		.320 (.260)	
QWL Rating	.183** (.056)	.281** (.054)	.240** (.059)	.267** (.060)
Plant Dummies	included ^a	included ^a		
R ²	.606	.529	.231	.153
F	7.20	5.89	7.23	7.35
n	126	126	126	126

Standard errors are in parentheses

* = statistically significant at .05 level

** = statistically significant at .01 level

a = as a set statistically significant at .01 level

Table 6

Regression Analysis of the Impact of Background,
Industrial Relations and QWL Rating Measures on Direct Labor Cost

<u>Explanatory Variables</u>	<u>Direct</u>	<u>Direct</u>	<u>Direct</u>	<u>Direct</u>
Intercept	-126.305** (5.387)	-127.272** (3.829)	-96.949** (2.316)	-103.815** (2.078)
Overtime	-.053 (.133)	-.006 (.136)	-.114 (.130)	-.349* (.143)
Total Hours	-.099 (.533)	-.619 (.496)	-.001 (.278)	-.347 (.312)
Grievance Rate	-.047** (.014)		-.050** (.008)	
Absentee Rate	.567 (.550)		-1.336** (.410)	
QWL Rating	-.153 (.105)	-.050 (.095)	-.039 (.103)	-.021 (.111)
Plant Dummies	included ^a	included ^a		
R ²	.549	.508	.320	.093
F	8.19	7.78	15.55	5.73
n	171	171	171	171

Standard errors are in parentheses

* = statistically significant at .05 level

** = statistically significant at .01 level

a = as a set statistically significant at .01 level

Table 7

Correlation of QWL Rating and Economic and Industrial
Relations Performance

	<u>1976</u>			
	<u>Quality</u>	<u>Direct Cost</u>	<u>Grievance</u>	<u>Absentee</u> <u>Discipline</u>
<u>QWL Rating in 1977</u>				
	-.120 (.636) ^a	.484 (.042)	-.463 (.053)	-.363 (.139) .086 (.733)
			<u>1978</u>	
			<u>Grievance</u>	<u>Absentee</u> <u>Discipline</u>
<u>QWL Rating in 1979</u>				
	-.024 (.924)	-.167 (.510)	-.195 (.439)	.169 (.502) -.185 (.463)

a = statistical significance level. There are 18 observations in each year.

DEC 17 1984

JUL 5 1984

BASEMENT

Date Due

--	--	--

Lib-26-67

HD28.M414 no.1329- 82
Katz, Harry Ch/Industrial relations pe
744959 D*BKS 00153900



3 9080 002 272 638

